

JRW AF

PATENT
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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of:)
T. ALBERTSSON)
Application No.: 09/902,536) Group Art Unit: 3682
Filed: July 11, 2001) Examiner: C. M. HANSEN
For: MANIPULATOR)

Commissioner for Patents
Washington, D.C. 20231

Sir:

REPLY BRIEF

This is a Reply Brief to the Examiner's Answer mailed July 28, 2004 to this appealed application.

1. Remarks

In the Examiner's Answer mailed July 28, 2004, the Examiner maintains the rejection of claims 2-6 and 11 under 35 U.S.C. § 103 (a) as being unpatentable over *Suzuki*, *Mauletti* and *Kizer*, and further responds to Appellant's arguments in the Appeal Brief filed May 10, 2004. Appellant respectfully traverses the Examiner's basis for maintaining the outstanding rejection for the following reasons.

Specifically, as discussed in Section 11 (page 4, first full paragraph) of the Examiner's Answer, the Examiner initially argues that contrary to Appellant's arguments that *Suzuki* does not disclose a "device for holding and stretching the cabling such that loosely hanging loops are avoided, and stretching the cabling such that it does not conflict with objects in the working range of the robot," that *Suzuki* does indeed disclose such a device, and since the particular

language discussed above is not recited in independent claim 11, that such an argument would be moot.

Appellant respectfully disagrees with the Examiner and directs the Examiner's attention to claim 11, which recites "a supporting device for guiding and holding the cabling in a stretched condition at the front arm part, the supporting device comprising a supporting arm rotatably arranged on the rear arm part and an auxiliary arm arranged at the front arm part."

As discussed on pages 10 and 11 of the Appeal Brief, Appellant respectfully re-emphasizes that as shown in Figs. 2 and 3 of *Suzuki*, reproduced at right, cable 5 of *Suzuki* is supported in the shape of a crown making the cable supporting portion of the movable support 3a as a peak and providing slacks on the cable portions 5a and 5b which dispose at both sides of the peak, as shown in dotted outline in Fig. 3 of *Suzuki*. This clearly contrasts with the arrangement according to the present invention in which the supporting device is

provided for guiding and holding the cable in a stretched condition (not slacked as in *Suzuki*) at front arm part 3 of upper arm 1 (see Fig. 1 reproduced above).

Secondly, as discussed in Section 11 (pages 4-5, paragraph beginning at bottom of page 4 to top of page 5) of the Examiner's Answer, the Examiner implies that Appellant merely argues

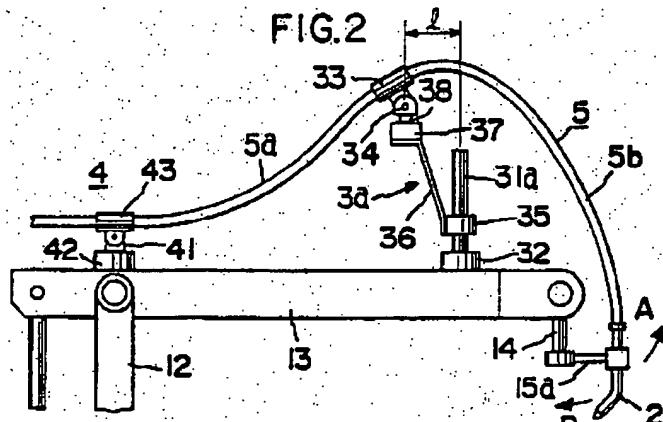
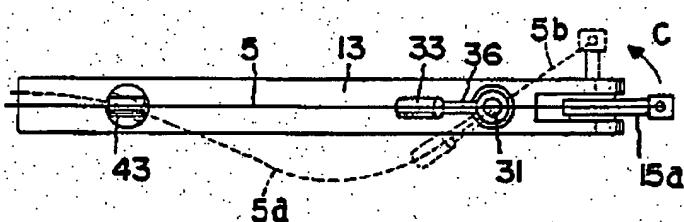
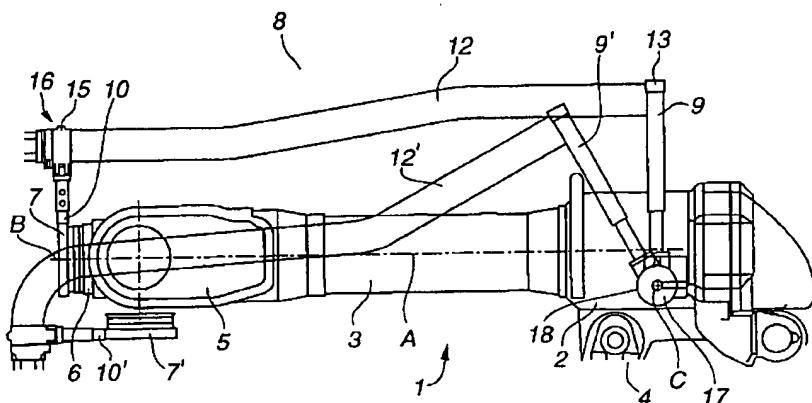
Fig. 2 of *Suzuki*Fig. 3 of *Suzuki*

Fig. 1 of 09/902,536

in the Appeal Brief that since *Suzuki* "does not disclose the cabling being capable of being wound around the front arm part," that Appellant's invention is novel. Appellant respectfully asserts that as discussed on pages 6-11 of the Appeal Brief, the arguments presented on pages 6-8 differentiate Appellant's invention over the teachings of *Suzuki*, and the further arguments presented on pages 9-11 differentiate Appellant's invention over the combined teachings of *Suzuki* and *Mauletti*. Thus, Appellant is unclear as to why the Examiner believes that the teachings of *Mauletti* have not been addressed.

Thirdly, as discussed in Section 11 (page 5, first full paragraph on page 5) of the Examiner's Answer, the Examiner implies that Appellant merely argues in the Appeal Brief that the *Suzuki* robot is a "completely different robot from that claimed by the applicant and therefore applicant's invention is novel." Again, as discussed above for Examiner's previous assertion, Appellant is unclear as to why the Examiner believes Appellant would take such a trivial position for novelty. In fact, as discussed in the Appeal Brief on pages 7-11, Appellant clearly takes the position that since the conventional industrial robot disclosed by *Suzuki* is not an anthropomorphic robot where the upper arm rotates about its own longitudinal axis as in the present invention, the robot of *Suzuki* would not experience the same or similar problems of loosely hanging loops which would conflict with objects in the working range of the robot, as addressed by the present invention.

Appellant thereafter describes the need for "holding the cabling in a stretched condition," as recited in independent claim 11, so as to avoid the aforementioned problem of the loosely hanging loops at sections 5a and 5b in Fig. 2 (reproduced at right) of *Suzuki*.

As further discussed in Section 11

(page 5, first full paragraph on page 5) of the Examiner's Answer, the Examiner implies that Appellant added new claim 11 on 9/24/2003, thus requiring the Examiner to modify *Suzuki* with the teachings of *Mauletti*. Again, Appellant is puzzled as to why the Examiner ignores the fact that claim 11 as added in the 9/24/2003 Amendment recites the anthropomorphic manipulator in

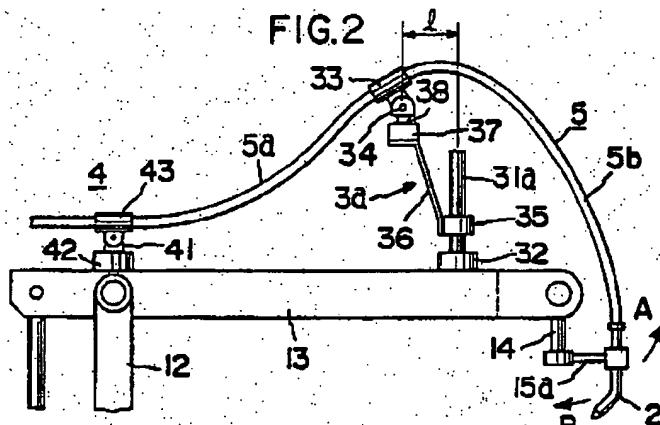


Fig. 2 of *Suzuki*

a similar manner as recited in independent claims 1 and 7 per the Amendment filed May 1, 2003, in which case the Examiner disregarded the relevant features of Appellant's invention until Appellant specifically re-emphasized the difference between an anthropomorphic manipulator and the conventional robotic device of *Suzuki*. Thereafter, the Examiner only cited *Mauletti* for the first time in the December 17, 2003 Office Action to conclude that since *Mauletti* discloses an anthropomorphic manipulator, the combination of *Suzuki* and *Mauletti* would render the present invention obvious.

Turning next to Section 11 (page 5, second full paragraph on page 5) of the Examiner's Answer, the Examiner implies that Appellant's argument that *Suzuki* discloses a "slacked" holding of the cable has "no basis upon the claim language or allowability" since claim 11 does not stipulate that the device for holding and stretching the cabling cannot have slack. Appellant respectfully disagrees with the Examiner's conclusions since the specification clearly differentiates between a slacked versus a stretched cable. For example, as discussed in the Background on page 2, line 27 to page 3, line 3, the specification clearly explains that when "the cabling is slack ... the surplus then forms a loop ... [t]his loop of cabling often encroaches upon the working range of the rotor ... [d]uring operations of the robot, the loop is often set into oscillation ... [i]t may then get stuck in objects within the working range." Thus Appellant clearly differentiates between a slacked versus a stretched cable, and further the problems associated with slacked cabling.

Turning next to Section 11 (page 6, first through fourth full paragraphs on page 6) of the Examiner's Answer, the Examiner indicates that contrary to Appellant's arguments, the Examiner has met the burden set forth in MPEP 2141 for establishing a *prima facie* case of obviousness since applying the teachings of *Suzuki* to the anthropomorphic manipulator of *Mauletti* would provide the manipulator with increased freedom of movement and ability to work on a product with greater flexibility.

With regard to the Examiner's statements above in Section 11, page 6, as discussed in the Appeal Brief on pages 10 and 11, Appellant respectfully agrees with the Examiner that it would indeed be beneficial to have an anthropomorphic manipulator with increased freedom of movement and ability to work on a product with greater flexibility. However, as discussed in the Appeal Brief, Appellant remains unclear as to how the support arms and cable grasping

components of *Suzuki* could be used with the robot of *Mauletti*, as suggested by the Examiner, as the two robots operate on entirely different principles. Moreover, Appellant respectfully asserts that even if the teachings of *Suzuki* were applied to the robotic device of *Mauletti*, one of ordinary skill in the art would still fail to achieve Appellant's invention in that cable 5 for *Suzuki* is not arranged such that it can be wound around the upper arm when this arm is rotated as is the case with the present invention (see also recitation in independent claim 11 of present invention). Instead, as shown in Fig. 2 of *Suzuki*, reproduced at right,

cable 5 of *Suzuki* is supported in the shape of a crown making the cable supporting portion of the movable support 3a as a peak and providing slacks on the cable portions 5a and 5b which dispose at both sides of the peak, as shown in dotted outline in Fig. 3 of *Suzuki* (see also recitation in independent claim 11 of present invention). This clearly contrasts with the arrangement according to the present invention in which the supporting device is provided for guiding and holding the cable in a stretched condition (not slacked as in *Suzuki*) at front arm part 3 of upper arm 1. The supporting device according to the present invention thus holds and stretches the cable such that loosely hanging loops are avoided and such that the cable does not conflict with objects in the working range of the robot. The cable support device of *Suzuki*, on the other hand, is not capable of functioning in such a manner, such that the cable is firmly supported. Accordingly, one of ordinary skill in the art could not apply the teachings of *Suzuki* to the robotic device of *Mauletti* as the two devices function in entirely different manners and therefore present a variety of unique and different problems associated with their specific operation.

Thus Appellant respectfully asserts that the unfounded assertions by the Examiner which attempt to discredit Appellant's arguments on the basis that such arguments are unsupported or trivial in nature, nevertheless fail to address or overcome the aforementioned deficiencies in the

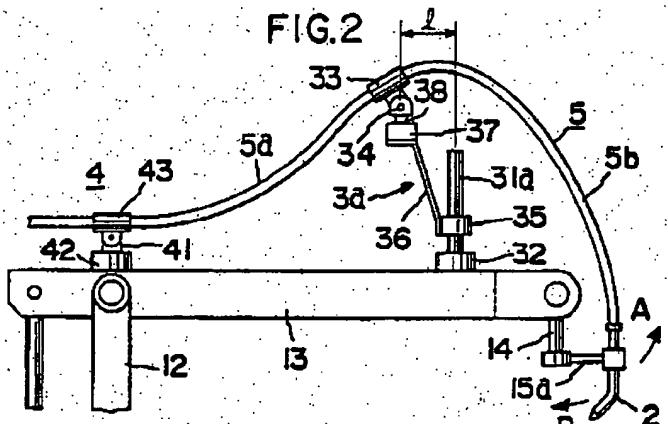


Fig. 2 of Suzuki

combined teachings of *Suzuki* and *Mauletti*, as compared to the specific recitations in independent claim 11 of the present invention.

Thus based upon the reasons presented in the outstanding Appeal Brief and Appellant's responses to the Examiner's statements in the Examiner's Answer, Appellant maintains that *Suzuki* and *Mauletti*, whether viewed singly or in combination, do not teach or fairly suggest an anthropomorphic manipulator, including, "an upper arm which comprises a rear arm part and which further comprises a front arm part having a longitudinal axis, the front arm part being arranged for rotation about said longitudinal axis, cabling extending along the said arm parts and being arranged as to be wound around said front arm part when said front arm part is rotated about said longitudinal axis, the front arm part being journalled in bearings in the rear arm part for relative rotation, a supporting device for guiding and holding the cabling in a stretched condition at the front arm part, the supporting device comprising a supporting arm rotatably arranged on the rear arm part and an auxiliary arm arranged at the front arm part," as recited in independent claim 11.

2. Conclusion

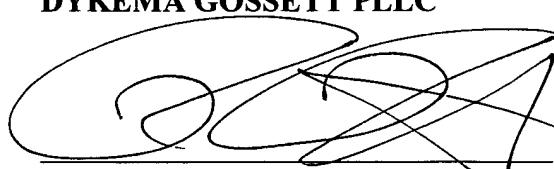
In view of the foregoing, Appellant respectfully requests the reversal of the Examiner's rejections and allowance of the pending claims.

If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 04-2223. If a fee is required for an extension of time under 37 C.F.R. §1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

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